

# SERVICE MANUAL

## BX50 SERIES FORKLIFT TRUCKS

**SM160**

BEB16E1-06

**FG20/25/28/30/32(S)(H)T-16**  
**FG35AHT-16**

**GASOLINE/LPG**

S/N 200001A~  
S/N 210001A~  
S/N 750875 - 751862  
S/N A224001~  
S/N 751863~

EPA Tier 1  
EPA Tier 2  
EPA Tier 2  
EPA Tier 2/CARB 2010  
CARB 2010

**FD20/25/28/30/32T-16**  
**FD35AT-16**

**DIESEL**

S/N 200001A~/210001A~  
S/N A223001~/750875~

EPA Tier 2  
EPA Interim Tier 4

# BX50



## WARNING

Read and observe all warnings on this unit before operating it.

**DO NOT** operate this equipment unless all factory-installed guards and shields are properly secured in place.

# KOMATSU®

**REVISED: JUNE 2014**

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# FOREWORD

## INTRODUCTION

This Service Manual has been developed as an information resource to help the reader learn about, understand, repair and maintain the BX50 Series forklift trucks, and the various equipment, systems, inspections, sensors, diagnostic procedures and diagnostic equipment utilized to maintain, adjust and troubleshoot these systems. Although reference is made to maintenance procedures necessary to perform servicing of this vehicle, you should refer to the applicable *Operation and Maintenance Manual* for these lift trucks for more complete maintenance information.

Komatsu is involved in a concentrated and highly technical program of designing and developing cleaner burning, more efficient and more powerful engines for use in the industrial truck market. As a result, new computerized sensors, systems and diagnostic monitors have been created to make the job of maintaining and repairing these systems simple and easy.

Read this manual carefully, refer to it often and learn the repair, testing and adjustment procedures to the best of your ability. Please note that some illustrations are generic and may not look exactly like your unit in every detail.

Ensure that, when you are working on or around industrial trucks, **Safety is priority Number One**. Read, understand and obey all **WARNINGS** and **CAUTIONS**.

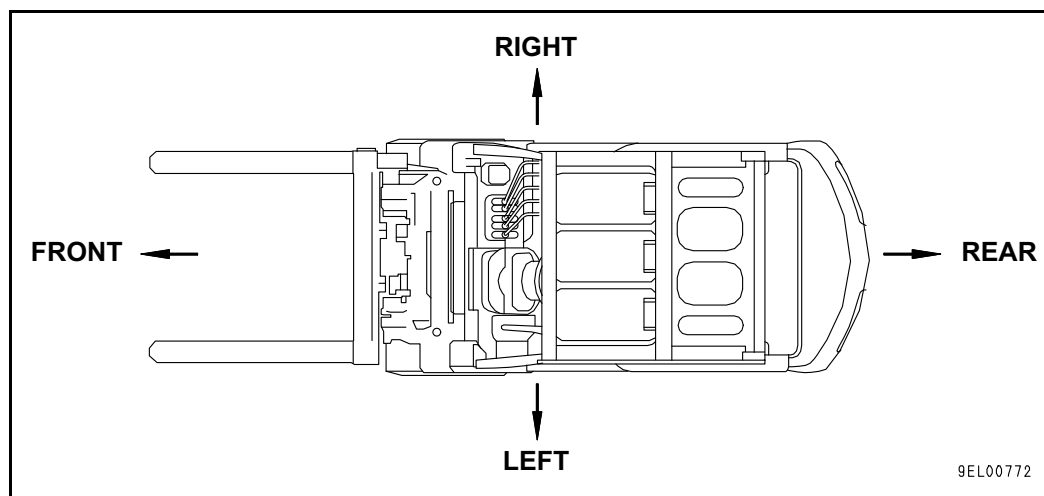
Follow the instructions and procedures presented in this manual when working on these lift trucks and their systems. Damage to the equipment, and possible injury to yourself or others, may result if these procedures are not adhered to carefully.

Keep this manual nearby and accessible for use when necessary. If this book becomes dirty, worn or illegible, contact Komatsu for a replacement. The procedures outlined in this manual will be updated periodically. Be sure that you have the latest revision in order to learn the newest information available. Revision dates will be clearly displayed on the lower left hand corner of the cover page.

This will aid in maintaining your equipment in excellent condition and in ensuring that these lift trucks will operate safely at maximum efficiency.

## DIRECTION OF TRUCK

This manual uses the directions left, right, front and rear as they are seen from the operator's seat.



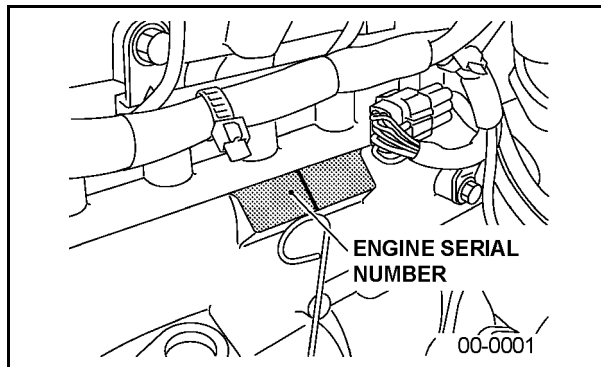
## FOREWORD

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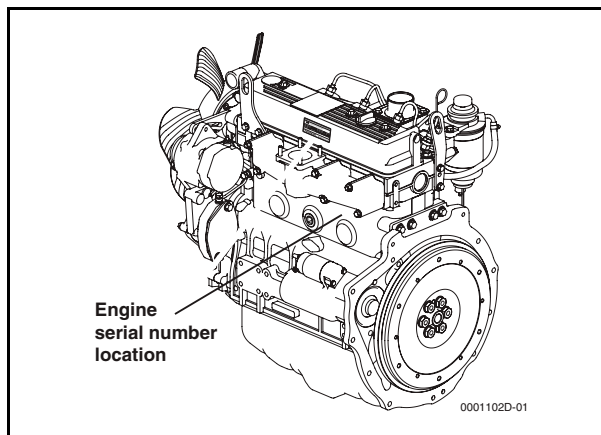
### ENGINE SERIAL NUMBER LOCATION

The K21/K25 engine serial number is stamped on an angled and machined pad on the right side of the engine block in the center just beneath the valve cover.

The machined boss is split vertically by a groove. The Engine Model number is on the left pad and the Engine Serial number is on the right pad.



The 4D94LE/4D98E engine model and serial number are stamped on the block below the exhaust manifold. The engine model number is followed by the five digit engine serial number.





## FORKLIFT TRUCKS COVERED IN THIS PUBLICATION

MODEL	DESCRIPTION
<b>BX50 Gasoline, LPG and Dual Fuel Models</b>	
FG20ST-16	4,000 lb. capacity, K21 gasoline engine, cushion tires
FG20STLS-16	4,000 lb. capacity, K21 LPG engine, cushion tires, LPS
FG20SHT-16	4,000 lb. capacity, K25 gasoline engine, cushion tires
FG20SHTLS-16	4,000 lb. capacity, K25 gasoline engine, cushion tires, LPS
FG20T-16	4,000 lb. capacity, K21 gasoline engine, pneumatic tires
FG20TUS-16	4,000 lb. capacity, K21 gasoline engine, pneumatic tires, GS
FG20TLS-16	4,000 lb. capacity, K21 LPG engine, pneumatic tires, LPS
FG20HT-16	4,000 lb. capacity, K25 gasoline engine, pneumatic tires
FG20HTUS-16	4,000 lb. capacity, K25 gasoline engine, pneumatic tires, GS
FG20HTLS-16	4,000 lb. capacity, K25 LPG engine, pneumatic tires, LPS
FG25ST-16	5,000 lb. capacity, K21 gasoline engine, cushion tires
FG25STLS-16	5,000 lb. capacity, K21 LPG engine, cushion tires, LPS
FG25SHT-16	5,000 lb. capacity, K25 gasoline engine, cushion tires
FG25SHTLS-16	5,000 lb. capacity, K25 LPG engine, cushion tires, LPS
FG25T-16	5,000 lb. capacity, K21 gasoline engine, pneumatic tires
FG25TUS-16	5,000 lb. capacity, K21 gasoline engine, pneumatic tires, GS
FG25TLS-16	5,000 lb. capacity, K21 LPG engine, pneumatic tires, LPS
FG25HT-16	5,000 lb. capacity, K25 gasoline engine, pneumatic tires
FG25HTUS-16	5,000 lb. capacity, K25 gasoline engine, pneumatic tires, GS
FG25HTLS-16	5,000 lb. capacity, K25 LPG engine, pneumatic tires, LPS
FG28SHT-16	5,500 lb. capacity, K25 gasoline engine, cushion tires
FG28SHTLS-16	5,500 lb. capacity, K25 LPG engine, cushion tires, LPS
FG28HT-16	5,500 lb. capacity, K25 gasoline engine, pneumatic tires
FG28HTUS-16	5,500 lb. capacity, K25 gasoline engine, pneumatic tires, GS
FG28HTLS-16	5,500 lb. capacity, K25 LPG engine, pneumatic tires, LPS
FG30SHT-16	6,000 lb. capacity, K25 gasoline engine, cushion tires
FG30SHTLS-16	6,000 lb. capacity, K25 LPG engine, cushion tires, LPS
FG30HT-16	6,000 lb. capacity, K25 gasoline engine, pneumatic tires

## FOREWORD

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MODEL	DESCRIPTION
FG30HTUS-16	6,000 lb. capacity, K25 gasoline engine, pneumatic tires, GS
FG30HTLS-16	6,000 lb. capacity, K25 LPG engine, pneumatic tires, LPS
FG32SHT-16	6,500 lb. capacity, K25 gasoline engine, cushion tires
FG32SHTLS-16	6,500 lb. capacity, K25 LPG engine, cushion tires, LPS
FG32HT-16	6,500 lb. capacity, K25 gasoline engine, pneumatic tires
FG32HTUS-16	6,500 lb. capacity, K25 gasoline engine, pneumatic tires, GS
FG32HTLS-16	6,500 lb. capacity, K25 LPG engine, pneumatic tires, LPS
FG35AHT-16	7,000 lb. capacity, K25 gasoline engine, pneumatic tires
FG35AHTUS-16	7,000 lb. capacity, K25 gasoline engine, pneumatic tires, GS
FG35AHTLS-16	7,000 lb. capacity, K25 LPG engine, pneumatic tires, LPS

### **BX50 Diesel Models**

FD20T-16	4,000 lb. capacity, 4D94E or 4D98E diesel engine, pneumatic tires
FD20TUS-16	4,000 lb. capacity, 4D94E or 4D98E diesel engine, pneumatic tires, DS
FD25T-16	5,000 lb. capacity, 4D94E or 4D98E diesel engine, pneumatic tires
FD25TUS-16	5,000 lb. capacity, 4D94E or 4D98E diesel engine, pneumatic tires, DS
FD28T-16	5,500 lb. capacity, 4D94E or 4D98E diesel engine, pneumatic tires
FD28TUS-16	5,500 lb. capacity, 4D94E or 4D98E diesel engine, pneumatic tires, DS
FD30T-16	6,000 lb. capacity, 4D94E or 4D98E diesel engine, pneumatic tires
FD30TUS-16	6,000 lb. capacity, 4D94E or 4D98E diesel engine, pneumatic tires, DS
FD32T-16	6,500 lb. capacity, 4D94E or 4D98E diesel engine, pneumatic tires
FD32TUS-16	6,500 lb. capacity, 4D94E or 4D98E diesel engine, pneumatic tires, DS
FD35AT-16	7,000 lb. capacity, 4D94E or 4D98E diesel engine, pneumatic tires
FD35ATUS-16	7,000 lb. capacity, 4D94E or 4D98E diesel engine, pneumatic tires, DS

**CHASSIS SERIAL NUMBER RANGES BY MODEL**

<b>MODEL</b>	<b>CHASSIS SERIAL NUMBER RANGE</b>
FD25T-16	200001A~ / 210001A~ / A223001 - A223400 / 750875~
FD30T-16	200001A~ / 210001A~ / A223401 - A223900 / 750875~
FD32T-16	200001A~ / 210001A~ / A223901 - A224000 / 750875~
FG20T-16	200001A~ / 210001A~ / A224001 - A224100 / 750875~
FG25T-16	200001A~ / 210001A~ / A224101 - A230000 / 750875~
FG25HT-16	200001A~ / 210001A~ / A230001 - A230500 / 750875~
FG30HT-16	200001A~ / 210001A~ / A230501 - A231500 / 750875~
FG32HT-16	200001A~ / 210001A~ / A231501 - A233000 / 750875~
FG20ST-16	200001A~ / 210001A~ / A233001 - A233300 / 750875~
FG25ST-16	200001A~ / 210001A~ / A233301 - A240000 / 750875~
FG25SHT-16	200001A~ / 210001A~ / A240001 - A240300 / 750875~
FG30SHT-16	200001A~ / 210001A~ / A240301 - A241300 / 750875~
FG32SHT-16	200001A~ / 210001A~ / A241301 - A243000 / 750875~

**ANSI/ITSDF B56.1-2012 COMPLIANCE SERIAL NUMBER BREAKS**

Models in these ranges were factory-installed with Mast/Attachment (Auxiliary) Lockout.

<b>MODEL</b>	<b>CHASSIS SERIAL NUMBER RANGE</b>
FG20ST-16	A233132 - A233139 / A280000 - A299999
FG20T-16	A224023 - A224026 / A400000 - A409999
FG25HT-16	A230096 - A230156 / A260000 - A269999
FG25SHT-16	A240058 - A240087 / A470000 - A479999
FG25ST-16	A234854 - A235148 / A450000 - A469999
FG25STLS-16	A243008 - A243012 / A250000 - A259999
FG25T-16	A225994 - A226379 / A250000 - A259999
FG25TLS-16	A243308 - A499999
FG30HT-16	A231327 - A249999 / A410000 - A429999
FG30SHT-16	A240524~
FG32HT-16	A231553 - A231561 / A270000 - A279999
FG32SHT-16	A241429 - A241436 / A480000 - A489999

## FOREWORD

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### K21/K25 ENGINE SERIAL NUMBER BREAKS

To identify your engine serial number, see the EPA/CARB label on the engine valve cover.

#### EPA TIER 1

MODEL YEAR	LPG	DUAL	GASOLINE
2005	K21-K14398~ K25-K10903~	K21-K14814~ K25-K11051~	K21-K14462~ K25-K11279~
2006	K21-K32097~ K25-K24078~	K21-K32278~ K25-K24117~	K21-K32280~ K25-K24711~

#### EPA TIER 2

MODEL YEAR	LPG	DUAL	GASOLINE
2007	K21-023868~ K25-049259~	K21-023873~ K25-049112~	K21-024907~ K25-050425~
	K21-K48924~ K25-K36577~	K21-K49292~ K25-K37465~	K21-K50077~ K25-K37661~
2008/2009	K21-046637~ K25-067269~	K21-046682~ K25-067294~	K21-046895~ K25-067505~

#### EPA/CARB 2010

MODEL YEAR	LPG	DUAL	GASOLINE
2010	K21-086329~ K25-107691~	K21-086298~ K25-107784~	K21-089021~ K25-110042~
2011	K21-099450~ K25-120623~	K21-K60485~ K25-K46021~	—
2012	K21-122060~ K25-145609~	K21-K64052~ K25-K48250~	—
2013	K21-145683~ K25-171085~	K21-K65966~ K25-K49595~	—

## EPA COMPLIANCE SERIAL NUMBER BREAKS

ENGINE	EPA COMPLIANCE	CHASSIS SERIAL NUMBER RANGE
4D94LE	Tier 2 (2004 - 2007)	200001A - 215882A
4D98E	Interim Tier 4 (2008)	215883A - 219999A / 750875~ / A223001~
K21/K25	Tier 1 (2004 - 2006)	200001A - 205849A
	Tier 2 (2007 - 2009)	210001A - 219999A / 750875 - 751862 / A224001~
	EPA / CARB 2010	FG25T-16 ..... K21 DUAL ..... A226028~ FG20ST-16 ..... K21 LP ..... A233117~ FG20T-16 ..... K21 LP ..... A224023~ FG25ST-16 ..... K21 LP ..... A234706~ FG25T-16 ..... K21 LP ..... A225867~ FG25STLS-16 ..... K21 UL-S ..... A243013~ FG25TLS-16 ..... K21 UL-S ..... A243317~ FG25HT-16 ..... K25 DUAL ..... A230083~ FG30HT-16 ..... K25 DUAL ..... A230985~ FG25HT-16 ..... K25 LP ..... A230077~ FG25SHT-16 ..... K25 LP ..... A240053~ FG30HT-16 ..... K25 LP ..... A231078~ FG30SHT-16 ..... K25 LP ..... A240451~ FG32HT-16 ..... K25 LP ..... A231550~ FG32SHT-16 ..... K25 LP ..... A241398~ All Japan import models ..... 751863~

